LEVEL II

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AN ANALYSIS OF CONSOLIDATING THE DISTRIBUTION OF DESC-MANAGED ITEMS AT DAYTON, OHIO.

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<u>SUMMARY</u>:

This study shows that consolidating the distribution of DESC-managed items at Dayton, Ohio, will result in an annual increase of approximately $800,000 over the current distribution system. Distribution of these items is being done by depots at Dayton; Ogden, UT; Norfolk, VA; Oakland, CA; and New Cumberland, PA.

A 29 August 1977 study looked at the costs (savings) of consolidating the distribution of DESC-managed items done by the depot at Ogden with that done by Dayton. That study showed an expected increase in annual costs of $276,000, subsequently adjusted to $21,000. This study shows that further consolidation of the other depots with Dayton will add $790,000 to annual costs.

The costs considered are for people, supporting services, transportation and supplier charges for shipping to more than one depot. The added supplier charges (which result in a savings through consolidation) account for the adjustment made to the 29 August 1977 study. These charges were determined from a sampling conducted by the Defense Audit Service.

While some variance could be expected in the estimated costs used in this study, their magnitude is sufficient to show that no net savings would result from consolidating the distribution of DESC-managed items at Dayton, Ohio.

AN ANALYSIS OF CONSOLIDATING THE DISTRIBUTION OF
DESC-MANAGED ITEMS AT DAYTON, OHIO

1. OBJECTIVE

To determine the economic and operational feasibility of consolidating the distribution of DESC-managed items at Dayton, Ohio.

2. BACKGROUND

A study entitled, "An Analysis of the Electronics Distribution Depot Mission at Dayton, Ohio," 29 August 1977, examined three alternatives for distributing DESC-managed electronics. One alternative was to move the current electronics distribution mission at Ogden, Utah, to Dayton, Ohio. DESC-managed electronics distributed by Military Service depots as a result of special agreements would not be consolidated at Dayton. Reviews of the 29 August 1977 study generated questions about the feasibility of consolidating the distribution of electronics done by Service depots at Dayton. DESC examined such a consolidation in studies made in 1973, 1976 and 1977.

3. SCOPE

The 29 August 1977 study covered the consolidation of the electronics distribution done by Ogden with that done by Dayton. This study adds the consolidation of electronics distribution done by the Norfolk Naval Supply Center (NSCN), the Oakland Naval Supply Center (NSCO) and the New Cumberland Army Depot (NCAD).

4. METHODOLOGY

This analysis examines the one-time and recurring cost increase or decrease expected to result from consolidating the distribution of all DESC-managed items at Dayton, Ohio. It also looks at the impact of such a consolidation on operational performance.

The costs considered are: transportation; receipt and shipment of material; added vendor charges for shipment to more than one depot; stock levels; bulk relocation of stock; and moving or terminating people.

Operational impacts considered are: survivability in case of disaster or attack and satisfaction of customer requirements for special support.

5. ASSUMPTIONS

The assumptions used in this analysis are:

a. The manpower needed to receive and ship a unit of electronics material is the same at all locations.

b. Indirect and support labor and costs for processing electronics material in the Service depots is proportional to the direct labor used. The proportion used is the same as in the 29 August 1977 study.

c. Transportation costs are the same from all electronics suppliers to all depots.

d. Charges by suppliers to ship to more than one depot are $4.83 for each additional depot.

e. Oakland and Norfolk will establish retail stock levels on all items having a Navy demand of three or more in six months at those depots. The stockage criteria used at San Diego will be used at Norfolk and Oakland. The Navy will fill its retail inventory from Dayton. Wholesale issues made by Norfolk and Oakland will be made by Dayton.

f. The Army will continue its direct supply support operation at New Cumberland. To meet the Army's requirements for receiving material, they will continue to stock electronics at New Cumberland. Instead of receiving electronics from suppliers they would receive it from Dayton.

g. Stock levels at Norfolk and Oakland will be reduced by attrition over a three-year period. No bulk move of stock to Dayton will be made.

6. COSTS CONSIDERED

a. One-time: the costs for additional facilities and equipment needed at Dayton to handle the workload transferred from Norfolk, Oakland and New Cumberland. It also includes any cost for transferring or hiring people. Any reduced need for facilities or equipment at Norfolk, Oakland or New Cumberland is counted as a one-time savings.

b. Recurring Costs and Savings:

(1) Personnel: the salaries plus government benefits paid to the people processing receipts and shipments and in doing jobs which support them.

(2) Shift differential: the premium wages paid to people who must work on the second and third shifts to process additional workload at Dayton.

(3) Transportation: the change in second destination transportation costs caused by consolidating all distribution at Dayton.

(4) Split shipment: the change in supplier charges because they will have to ship to only one depot instead of several.

c. Other: the cost of any increased stock held at Norfolk and Oakland for retail demands and at New Cumberland for direct supply support.

7. RESULTS

No one-time costs have been computed for consolidating the distribution of electronics by Norfolk, Oakland and New Cumberland with the distribution at Dayton. Some one-time costs would occur but they are not significant enough to change the results of the analysis. Therefore, they have not been computed.

The recurring costs and savings expected to result from consolidation are shown in Figure 1. The computation of these costs and savings is explained in Appendix A. The consolidation would cause a $790,000 annual increase in costs over the current multi-depot distribution system.

Figure 1 also adds the costs and savings of consolidating Norfolk, Oakland and New Cumberland with Dayton to the costs and savings expected to result from consolidating Ogden with Dayton (taken from the 29 August 1977 study).

The overall consolidation would cause a $811,000 increase in costs over the current system. The split shipment savings were adjusted downward from the 29 August 1977 study as a result of the study, "Split Shipment Costs of the Electronics Commodity," dated March 1978.

The value of stock levels will increase by approximately $10 million if the distribution of DESC-managed items is consolidated at Dayton, Ohio.

8. IMPACT ON CUSTOMER SUPPORT

a. Army Direct Supply Support (DSS) - This analysis assumed that the Army would continue to stock DESC-managed items at New Cumberland in support of the DSS system even if distribution of these items is consolidated at Dayton. This assumption was used to make a conservative estimate of additional resources needed at Dayton. Such an assumption also assures no change in meeting the Army's DSS time requirements. In fact, if distribution is consolidated at Dayton, probably no stock would be kept at New Cumberland. This would result in more issues from Dayton to satisfy demands on the DSS, more receipts at New Cumberland and the same number of issues. In addition, the Army's time requirements for the DSS system would not always be met because of the shipping time from Dayton to New Cumberland.

b. Navy Specialized Support Depots (SSDs) - By special agreement with DLA, the Navy maintains wholesale stocks of DLA-managed material at Norfolk and Oakland. These stocks are used to fill the demands of ships supported by these activities. Additionally, the Navy fills other local demands from these stocks and issues to other Service customers upon direction from DLA Supply Centers. If the distribution of DESC-managed items is consolidated at Dayton, the Navy would retain retail stocks at Norfolk and Oakland for items with three demands in six months. All other demands now filled by these activities would be filled directly

Figure 1. Recurring Savings

($000)

Cost Element	NCAD	NSCN	NSCO	DESC	SUB-TOTAL	DDOU[1]	TOTAL
Personnel	-	315	761	(1,354)	(278)	506	228
Shift Differential	-	-	-	(130)	(130)	(73)	(203)
Non-personnel	-	-	-	-	-	18	18
Transportation	(9)	(144)	(457)	-	(620)	(727)	(1,347)
TOTAL	(9)	171	294	(1,484)	(1,028)	(276)	(1,304)
Split Shipments	44	108	86	-	238	255	493
Adjusted Total	35	279	380	(1,484)	(790)	(21)	(811)

Values in parentheses are costs.

[1]Net effect of DDOU consolidation from referenced study.

from Dayton. This would increase response time, particularly for those demands now filled by Oakland.

c. Survivability - With the major portion of DESC-managed items stocked at Dayton, the chances of customer support being interrupted by natural or man-made disasters are increased. The current practice of storing items in more than one depot provides a "hedge" against such disasters.

APPENDIX A

COMPUTATION OF COSTS AND SAVINGS

Consolidation of NSC Norfolk, NSC Oakland and New Cumberland Army Depot with the Dayton Depot

WORKLOAD CHANGES DUE TO CONSOLIDATING NSCN AT DESC

Norfolk would have 100,000 fewer issues and 10,000 fewer receipts. This equates to 12.93 and 3.38 PEs, respectively. This is based on NSCN currently making 500,000 issues (400,000 local and 100,000 other). NSCN currently has 50,000 receipts, they would retain 40,000 receipts for their local issues.

DESC would have 27,700 additional receipts (25,000 returns and 2,700 new procurement). There would be 22,300 split shipment savings. DESC's issues would increase by 140,000 (100,000 for NSCN other and 40,000 to NSCN). This equates to 10.12 PE for receipts and 18.10 PEs for issues.

P.E. - Personnel Equivalent

WORKLOAD CHANGES DUE TO CONSOLIDATING NSCO AT DESC

Oakland would have 245,000 fewer issues and 24,500 fewer receipts. This equates to 31.67 and 8.28 PEs, respectively. This is based on NSCO currently making 400,000 issues (155,000 local and 245,000 other). NSCO currently has 40,000 receipts, they would retain 15,500 receipts for local issues.

DESC would have 22,150 additional receipts (20,000 returns and 2,150 new procurement). There would be 17,840 split shipment savings. DESC's issues would increase by 260,500 (245,000 NSCO's other and 15,500 to NSCO). This equates to 8.10 and 33.67 PEs, respectively.

WORKLOAD CHANGES DUE TO CONSOLIDATING NCAD AT DESC

There would be no change in the workload requirements at NCAD. NCAD would operate as today with receipts coming from DESC instead of vendors.

NCAD's 9,000 receipts and 91,000 issues would continue.

DESC would have no additional receipts. This assumes that all of NCAD's 9,000 receipts are split shipments. DESC would have 9,000 more issues. This equates to 1.16 Personnel Equivalents.

CONSOLIDATION OF NSCN, NSCO AND NCAD WITH DAYTON

PERSONNEL SAVINGS

	NCAD	NSCN	NSCO	TOTAL
Issues	-	12.93	31.67	44.60
Receipts	-	3.38	8.38	11.66
Total	-	16.31	39.95	56.26
Other Warehousing (11%)	-	1.79	4.39	6.18
Total	-	18.10	44.34	62.44
Other (4%)	-	.72	1.77	2.49
Grand Total	-	18.82	46.11	64.93
Rounded Total		19	46	65

PERSONNEL INCREASES AT DESC

	DUE TO			
	NCAD	NSCN	NSCO	TOTAL
Issues	1.16	18.10	33.67	52.93
Receipts	-	10.12	8.10	18.22
Total	1.16	28.22	41.77	71.15
Other Warehousing (11%)				7.83
Total				78.93
Other (4%)				3.16
Grand Total				82.14
Rounded Total				82

CONSOLIDATION OF NSCN, NSCC AND NCAD WITH DAYTON

PERSONNEL SALARY SAVINGS (INCREASES)

AREA	DECREASES	INCREASES	NET	($000) ANNUAL SALARY	NET ($000)
Warehouse	62	79	(17)	16.4	(278.8)
Other	3	3	-	19.5	-
Total	65	82	(17)		(278.8)

SHIFT DIFFERENTIAL

SHIFT	PEOPLE NEEDED	DIFFERENTIAL	($000) SALARY	($000) COST
3rd	79	.100	16.4	129.6

CONSOLIDATION OF NSCN, NSCO AND NCAD WITH DAYTON

TRANSPORTATION COSTS

Dayton - NCAD

454 miles

9,000 lines

19.50% air @	$2.15/line	=	$3,773
43.70% surface @	$1.15/line	=	4,523
36.80% truck @	$.00050/line/mile	=	752
	Total	=	$9,048

Dayton - NSCN

593 miles

140,000 lines

19.50% air @	$2.15/line	=	$ 58,695
43.70% surface @	$1.15/line	=	70,357
36.80% truck @	$.00050/line/mile	=	15,276
	Total	=	$144,328

Dayton - NSCO

2,380 miles

260,500 lines

19.50% air @	$2.78/line	=	$141,217
56.59% surface @	$1.74/line	=	256,505
23.91% truck @	$.00047/line/mile	=	69,673
	Total	=	$467,395
	Grand Total	=	$620,771

SPLIT SHIPMENT SAVINGS

NCAD - 9,000

NSCN - 22,300

NSCO - 17,840

Total - 49,140

Cost of Split Shipment - $4.83

$4.83 x 49,140 = $237,346

DDOU - 52,800 @ $4.83[1] = $255,024

[1]The referenced study used $20.66. The $4.83 estimate was obtained from the study, "Split Shipment Costs of the Electronics Commodity," dated March 1978.

STOCK LEVEL CHANGES

If the distribution of DESC-managed items is consolidated at Dayton it is assumed the total level of wholesale stock will remain the same as the current level. However, Norfolk and Oakland will establish retail stock levels for those items with 3 demands in 6 months. The estimated retail levels at Norfolk and Oakland are based on the retail levels at San Diego.

San Diego has an electronics inventory of $3.7 million to support 237,000 annual retail demands. Norfolk has 435,000 annual retail demands and Oakland has 155,000 annual retail demands. Using the same ratio of inventory to demand as needed at San Diego, Norfolk will need approximately $7 million worth of retail inventory and Oakland will need approximately $3 million worth.